Hanford Waste Treatment Plant reaching new heights on largest facility

Richland, Wash. -- Last week, crews at the Hanford Waste Treatment Plant (WTP) finished installing the Pretreatment (PT) Facility’s fourth elevation of concrete walls. Completing the fourth elevation, which reaches 77 feet at the top, is a significant step towards completing civil construction activities for the facility.

“Once we finish concrete and steel construction, we can fully transition our focus to bulk commodity installations, such as heating, ventilation and air conditioning (HVAC) equipment; piping and electrical components,” Ty Troutman, area project manager for the facility, said. “All of this will enable us to finish facility construction in 2015 and reach operations in 2019.”

To place the final three walls at the facility’s fourth elevation, crews used a specialized concrete pumping truck with an extendable arm that reaches approximately 200 feet vertically or horizontally. The walls required nearly 90 cubic yards of concrete, enough to fill nine concrete trucks.

Large rebar curtains, which can weigh up to 30,000 pounds, have already been installed for the fifth concrete elevation. The rebar curtains reinforce the strength of the concrete and must be installed before the concrete is placed. Concrete work on the fifth elevation will begin late this fall. The fifth elevation will reach 96 feet at the top.

The PT Facility, the largest of the WTP’s four major nuclear facilities, will eventually have six elevated concrete sections. Each section, often referred to as a “lift or level,” is approximately 20 feet high. When complete, its concrete walls will reach a total height of 109 feet. Steel columns and roof trusses will extend beyond the walls to an overall height of 120 feet.

Currently, construction of the PT Facility is more than 30 percent complete. The PT Facility spans approximately one and one-half football fields in length and more than one field in width. When complete, it will contain more than 113,000 cubic yards of concrete, nearly 17,000 tons of structural steel and 102 miles of piping.

Bechtel National, Inc. is designing and building the world’s largest radioactive waste treatment plant for the U.S. Department of Energy at the Hanford Site in southeastern Washington state. The $12.2 billion Waste Treatment and Immobilization Plant (WTP), also known as the “Vit Plant,” will immobilize the radioactive liquid waste currently stored in 177 underground tanks using a process called “vitrification.”

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Vitrification involves blending the waste with molten glass and heating it to high temperatures. The mixture is then poured into stainless steel canisters. In this glass form, the waste is stable and impervious to the environment, and its radioactivity will dissipate over hundreds to thousands of years.

The WTP will cover 65 acres with four nuclear facilities -- Pretreatment, Low-Activity Waste Vitrification, High-Level Waste Vitrification and Analytical Laboratory-- as well as operations and maintenance buildings, utilities and office space.

Construction of the WTP began in 2001 and is now 56 percent complete. The plant will be operational in 2019.

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Crews pour concrete for one of the final three walls that compose the Pretreatment Facility’s fourth elevation. The walls at the fourth elevation reach 77 feet at the top. (Photo 1 of 2)
Crews used a specialized concrete pumping truck with a vertical reach of more than 200 feet and a horizontal reach of nearly 200 feet, to place the concrete walls in the Pretreatment Facility. (Photo 2 of 2)